UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/053,316	01/17/2002	Kenneth B. Lewis JR.	98-21C1	4050

7590 02/26/2003

Paul G. Lunn, Esq.
Patent Department
ZymoGenetics, Inc.
1201 Eastlake Avenue East
Seattle, WA 98102

EXAMINER
PRIEBE, SCOTT DAVID

ART UNIT	PAPER NUMBER
1632	

DATE MAILED: 02/26/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.	Applicant(s)
10/053,316	Lewis et al.
Examiner	**Art Unit**
Scott D. Priebe, Ph.D.	1632

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☐ Responsive to communication(s) filed on _____.

2a) ☒ This action is **FINAL.** 2b) ☐ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) 1-3 is/are pending in the application.

4a) Of the above, claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) 1-3 is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on Jan 17, 2002 is/are a) ☒ accepted or b) ☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12) ☒ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13) ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a) ☐ All b) ☐ Some* c) ☐ None of:

1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

14) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

a) ☐ The translation of the foreign language provisional application has been received.

15) ☒ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____
4) ☐ Interview Summary (PTO-413) Paper No(s). _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

All references made of record by applicant and the Office in the 09/303,821 application have been considered. It is unnecessary for applicant to disclose these references in an information disclosure statement. However, should applicant desire that any of these references be listed on the face of any patent that may issue, applicant should provide an information disclosure statement and a PTO-1449 listing such references. See MPEP 609, section I.A.2.

Priority

Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 120 as follows:

> The second application must be an application for a patent for an invention which is also disclosed in the first application (the parent or provisional application); the disclosure of the invention in the parent application and in the second application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

This application was filed as a continuation of U.S. Application No. 09/303,821. However, there is no support for the limitation "at least 3 μg of factor XIII per mg of fibrinogen" recited in claims 2 and 3 in the '821 application. As written, claim 2 embraces a solution which is saturating for factor XIII or exceeds that disclosed in the '821 application, e.g. 10,000 μg factor XIII/mg fibrinogen. Both the instant specification and the '821 application describes

closed ranges for factor XIII concentration, i.e. ranges with an upper and lower limit, such as 3-10 or 3-74 μg factor XIII per mg of fibrinogen. Such descriptions do not provide evidence that Applicant had contemplated ranges where the upper limit exceeds the upper limits described in the specification of the '821 application. This limitation recited in instant claims 2 and 3 is deemed to be new matter relative to the '821 application, and these claims do not enjoy benefit of priority to the '821 application for their full scope.

> An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) which includes the application number and its relationship to the instant application in the first sentence of the specification or in an application data sheet (37 CFR 1.78(a)(2) and (a)(5)).

For the reasons set forth above, the instant application contains new matter (in claims 2 and 3) not present in the '821 application. Consequently, the instant application may not be designated as a continuation of the '821 in the specific reference to this application in the first sentence of the specification. The instant application should be re-designated as a continuation-in-part of the '821 application, and the first sentence of the specification suitably amended.

Alternatively, applicant may consider amending claims 2 and 3 to remove the new matter. In this case, the instant application would properly be a continuation of the '821 application.

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because it contains a claim to priority under 35 USC 119(e) to U.S. Application No. 09/303,821, which was not a provisional application. The substitute oath or declaration should either omit this reference or include the reference under the appropriate clause claiming priority under 35 USC 120.

Specification

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: the specification does not provide proper antecedent basis for the limitation "at least 3 μg factor XIII per mg of fibrinogen" recited in claim 2.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lewis et al. (Circulation 96 (8): I-352, Nov. 1997) or Prunkard et al. (Thrombosis and Haemostasis, June 1997, Supp. [S], p. O152) both in view of MacPhee et al. (US 6,117,425) and Tse et al. (WO 93/05067).

Lewis teaches a method for producing a recombinantly-derived fibrin sealant by combining recombinant human fibrinogen, recombinant human factor XIII, and recombinant human thrombin instead of plasma-derived proteins routinely used at that time The recombinantly-derived fibrin sealant generates a clot with properties similar to those made with human plasma-derived proteins. Lewis also teaches that the recombinantly-derived fibrin sealant has the advantage of not risking viral contamination or antigenic response *in vivo* to contaminants in the bovine thrombin routinely used in previous fibrin sealants.

Like Lewis et al., Prunkard et al. discloses making a totally recombinant fibrin sealant using recombinant human fibrinogen, recombinant human factor XIII and recombinant human

thrombin, and states that these three recombinant proteins yield "a fibrin polymer indistinguishable from human fibrin". Prunkard et al. also cites safety concerns over natural products as the reason for using recombinant proteins.

Neither Lewis nor Prunkard teach the proportions in which the recombinant proteins are mixed or the addition of calcium ions. For this information, one skilled in the art would have to rely on their own experience as illustrated by the prior art regarding fibrin sealants made from natural products, such as McPhee et al. or Tse et al. described below.

MacPhee teaches a method for making a fibrin sealant composition preferably comprising 3-30 mg/ml fibrinogen, 0.01-350 U/ml of thrombin, 1-40 mM calcium ions, and factor XIII, (0.1-0.4 U of factor XIII per mg fibrinogen). MacPhee also discloses that it was previously known in the art that fibrin glue comprising approx. 39 mg/ml fibrinogen with 200-600 I.U./ ml thrombin produced clots with significantly increased stress, energy absorption, and elasticity values. MacPhee also teaches that the fibrinogen, thrombin and/or factor XIII can be recombinant human proteins. See for example col. 5, lines 27-30; col. 9, line 52 to col. 11, line 12; col. 19, lines 39-43; col. 22, lines 9-29; claims 47, 49, 50.

Tse teaches a topical fibrin sealant comprising fibrinogen, 50-130 mg/ml; thrombin, 100-1000 U/ml, and calcium ions at 10, 20, 40 or 60 mM, as well as methods for determining the effect of various concentrations of calcium ions on the time for the fibrin clot to form (e.g. page 17; Table 2, page 19). Thus Tse shows that optimization of calcium concentration in fibrin sealants was routinely optimized parameter.

Therefore, it would have been obvious to one of ordinary skill in the art to make a fibrin sealant utilizing recombinant human fibrinogen, recombinant human thrombin, recombinant human factor XIII, and calcium ions in the proportions recited by the instant claims. Lewis and Prunkard teach the advantages of using recombinant human proteins instead of plasma-derived products prevalent in the prior art tissue sealants, while MacPhee and Tse teach the relative proportions of those components, and that it was routine to optimize the final proportions.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prunkard (Nature Biotechnology, 14: 867-871, 1996) discloses that an efficient method was known for production of recombinant human fibrinogen, and the recombinant factor XIII was commercially available prior to the disclosures of Lewis or Prunkard (1997) described above.

This is a "continuation" of applicant's earlier Application No. 09/303,821. All claims are drawn to the same invention claimed in the earlier application and could have been finally rejected on the grounds and art of record in the next Office action if they had been entered in the earlier application. Accordingly, **THIS ACTION IS MADE FINAL** even though it is a first action in this case. See MPEP § 706.07(b). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no, however, event will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Certain papers related to this application may be submitted to Art Unit 1632 by facsimile transmission. The FAX numbers are (703) 308-4242 or (703) 305-3014 for any type of communication. In addition, FAX numbers for a computer server system using RightFAX are also available for communications before final rejection, (703) 872-9306, and for communications after final rejection, (703) 872-9307, which will generate a return receipt. The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 CFR 1.6(d)). NOTE: If applicant *does* submit a paper by FAX, the original copy should be retained by applicant or applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED, so as to avoid the processing of duplicate papers in the Office.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott D. Priebe whose telephone number is (703) 308-7310. The examiner can normally be reached on Monday through Friday from 8 AM to 4 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Reynolds, can be reached on (703) 305-4051.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0196.

Scott D. Priebe

SCOTT D. PRIEBE, PH.D
PRIMARY EXAMINER